

## SECTION 6 GRAVITY LATERALS AND BUILDING SEWERS

### 6.1 Materials

- A. Pipe: Pipe materials shall be as follows (refer to Standard Details to correlate Lateral and Building Sewer components to materials):
1. Ductile Iron Pipe (DIP) shall be Class 52 (4" minimum) conforming to ANSI A 21.51 or AWWA C151 latest edition, and shall have push-on joints with elastomeric gaskets.
  2. PVC SDR-26 shall meet ASTM D3034 specifications, and shall have push-on joints with elastomeric gaskets.
- B. Pipe Plugs: Designed for permanent installation and removable. Obtain plugs for various types of pipe used from the respective pipe manufacturer.
- C. Wye Connections: Wye connections are to be used for lateral connections on new sewer lines.
- D. Service Saddles: Service saddles shall be used for Lateral connections to existing sewer mains.
1. Saddle assembly consists of:
    - a) Saddle and bell.
    - b) Adapter as required to provide for push-on installation of Lateral.
    - c) Lateral sealing gasket that fits in groove in either bell or adapter.
    - d) Tap gasket for sealing saddle/bell to collector pipe.
    - e) Strap and fasteners for securing saddle/bell to collector pipe.
  2. Pressure rating of assembled push-on connection: Minimum 7 psi.
  3. *Materials and Components*:
    - a. *Saddle/bell*: Cast iron; ASTM A48, minimum Class 35 coated inside and out with heavy coat of black asphalt type.
    - b. *Service lateral push-on joint sealing gasket*: Elastomeric gasket, ASTM D3212; and, ASTM F477 for gasket specifications.
    - c. *Adapter*: PVC; ASTM D3034, SDR 35; epoxy bonded in cast iron bell.

- d. *Tap gasket*: Synthetic rubber meeting requirements of ASTM C361 for oil-resistant gaskets.
  - e. *Strap*: Type 304 stainless steel; minimum thickness 24 gage; minimum width 2.5 inches.
  - f. *Strap bolts*: Type 304 stainless steel T-bolts, washers and hex nuts; minimum diameter 3/8 inch.
- 4. Use service saddles instead of in-line fittings only when approved by the Engineer at locations where use of in-line fittings is unfeasible or inappropriate. Service saddles may not be used for any Lateral over 6 inches in diameter.
  - 5. Use "Y" pattern connections except:
    - a. For vertical riser laterals, where "T" pattern service connections may be used.
    - b. Where "T" pattern service connections are approved by the Township.
  - 6. *Manufacturer*: Romak Saddle, Inserta Tee or equal.

## **6.2 Installation**

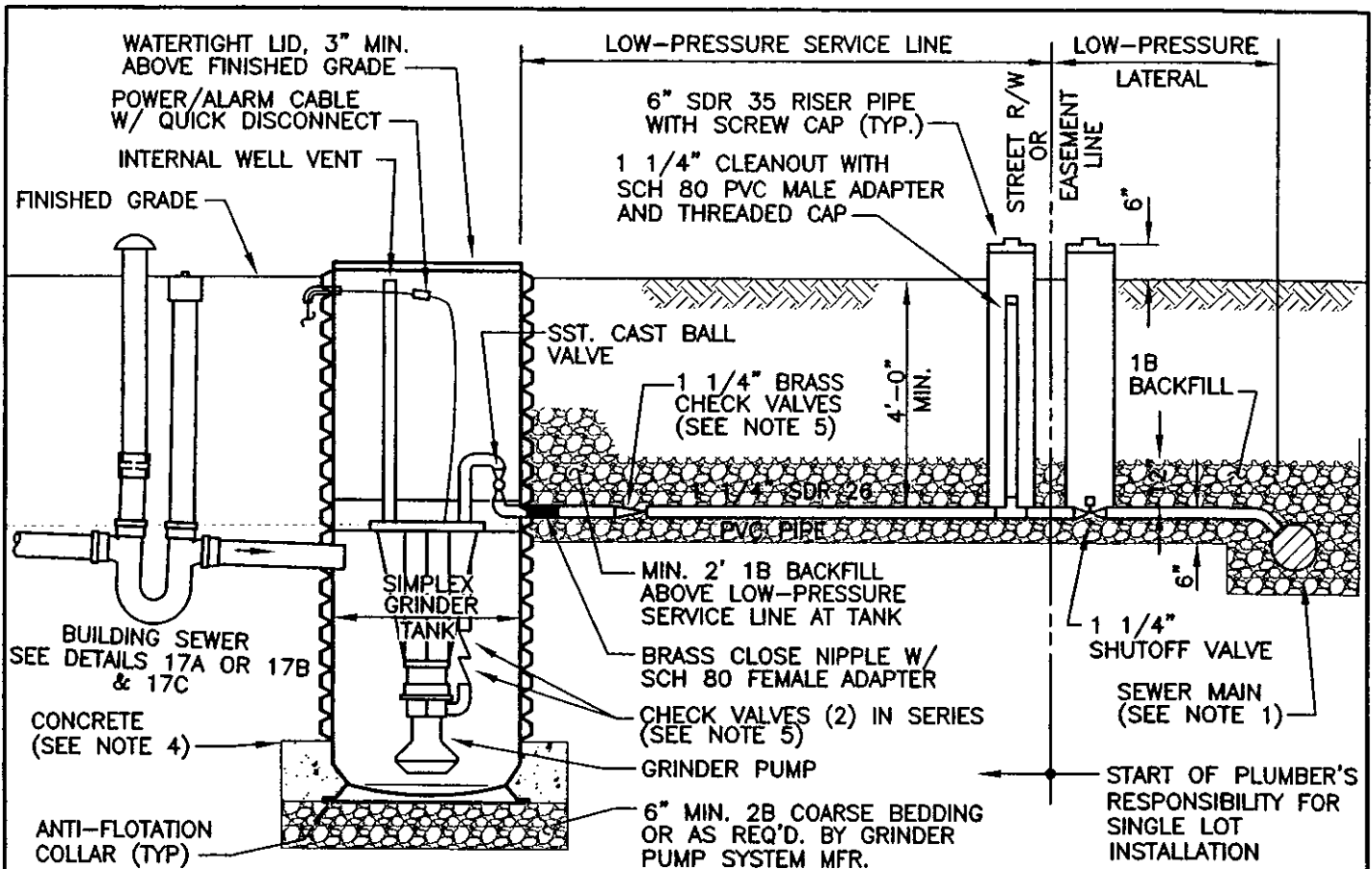
- A. Pipe and fittings (saddles, risers, bends, wyes, and plugs) shall be furnished and installed in strict accordance with these Technical Specifications and any and all practices and precautions required above for the gravity sanitary sewers in Section 5 of these Technical Specifications are equally applicable to the Laterals and Building Sewers.
- B. If rock is encountered during the installation of a Lateral or Building Sewer, the Extender shall construct the Lateral or Building Sewer to provide a minimum "rock-free" distance of one foot beyond the end of the Lateral or Building Sewer. No Lateral or Building Sewer shall be "butted" against rock.
- C. All Laterals and Building Sewers shall be installed with a minimum grade of 1/4"/ft. A straight alignment shall be maintained where possible. A minimum cover of three feet (3') shall be maintained to prevent crushing and freezing of the pipe, unless the Engineer or Building Code Official approves a lesser minimum cover.
- D. No trench shall be backfilled until the Lateral or Building Sewer has been visually inspected and approved by the Engineer or Building Code Official, respectively (refer to the Standard Details for pipe bedding and backfill).
- E. Trap: A main or intercepting trap shall be installed as shown in the Standard Details.

- F. Testing of Building Sewer: The Building Sewer shall not be deemed acceptable until said Building Sewer has satisfactorily passed the test hereinafter described. All costs of testing and any subsequent test(s), including equipment, material, water or labor required shall be the responsibility of the Owner.
1. The Building Sewer shall be tested by plugging the line at the Service Connection (point of connection with the Lateral) and by plugging the line at its point of connection with the Building. All risers, vents, plugs and cleanouts shall be adequately blocked, plugged or supported to withstand the pressure associated with the test. The test shall be made by either air or water. In either case, the test shall be designed to provide a residual pressure of 5.0 psi throughout the length of the Building Sewer.
  2. The test shall be made by attaching a water pump or air compressor testing apparatus to any suitable opening and after closing and supporting all other inlets and outlets to the Building Sewer, forcing air or water into the Building Sewer until there is a uniform gauge pressure of 5.0 psi. The Building Sewer shall be deemed acceptable if this pressure is maintained for 15 minutes without the introduction of additional water or air.
  3. Care shall be taken that the pressures generated by the test do not exceed the pipe manufacturer's recommendations.
- G. Testing of Laterals: Laterals shall be tested in accordance with the procedures specified in Section 5 of these Technical Specifications for gravity sanitary sewers. However, in the case of a new Lateral tying into an existing gravity sewer main, the Lateral shall be tested concurrently with the Building Sewer in accordance with Subsection F above.
- H. For a new connection into an existing sewer main, the following requirements shall be applicable for that portion of the Lateral installed within the paved portion of street rights-of-way and it shall be the responsibility of the Owner of the Improved Property served to require his plumber or Extender to adhere to these requirements.
1. The trench shall be thoroughly compacted using mechanical tamping equipment.
  2. The trench area shall be graded to conform to existing grade.
  3. No surplus excavated materials or debris shall be piled or stored in this area.
  4. All street surfaces that are disturbed or damaged by the Owner or his plumber or contractor shall be properly repaired at the Owner's cost.
  5. Subsequent settlement of the street resulting from improper construction practices shall be promptly repaired at the Owner's cost.

6. In no case, shall the sewer lateral be installed at a higher elevation than any potable water service within 18-inches.
7. In no case, shall a sewer lateral be installed within a 24-inch radius of any other utility, except for potable water lines, in which case a minimum separation of ten (10) feet is required.
8. If the Owner or his plumber or contractor fails to comply with any of the requirements of this Subsection H, then after reasonable notice to the Owner, the Township may proceed on its own to make any necessary corrections or repairs so that the aforesaid requirements are fulfilled. If the Township does so repair, then the Owner of the Improved Property shall be liable to the Township for the entire cost of such repairs and said cost will be included in the Owner's next quarterly billing for sewer services.
9. Only one (1) drop lateral connection may be employed in any single lateral.


### **6.3 Special Conditions and Requirements**

- A. Unless otherwise authorized by the Building Code Official, cleanouts shall be provided in each Building Sewer at maximum fifty (50) foot intervals and at changes in horizontal direction.
- B. Basement floor drains shall not be connected in any manner to the Public Sewer.
- C. All cleanouts, traps, and test tees shall be located as shown in the Standard Details.
- D. According to field conditions, vertical risers may be utilized when authorized or directed by the Engineer. Vertical riser Lateral connections shall be in accordance with the Standard Details.
- E. Cleanouts and vents shall be located in lawn/agricultural areas (i.e. non-paved areas) to the greatest extent practicable. If a cleanout or cleanout and vent combination must be located in a paved area, such as a driveway, due to site constraints, written Township approval must first be obtained, and the cleanout and/or vent risers shall be specially installed in accordance with the Standard Details.

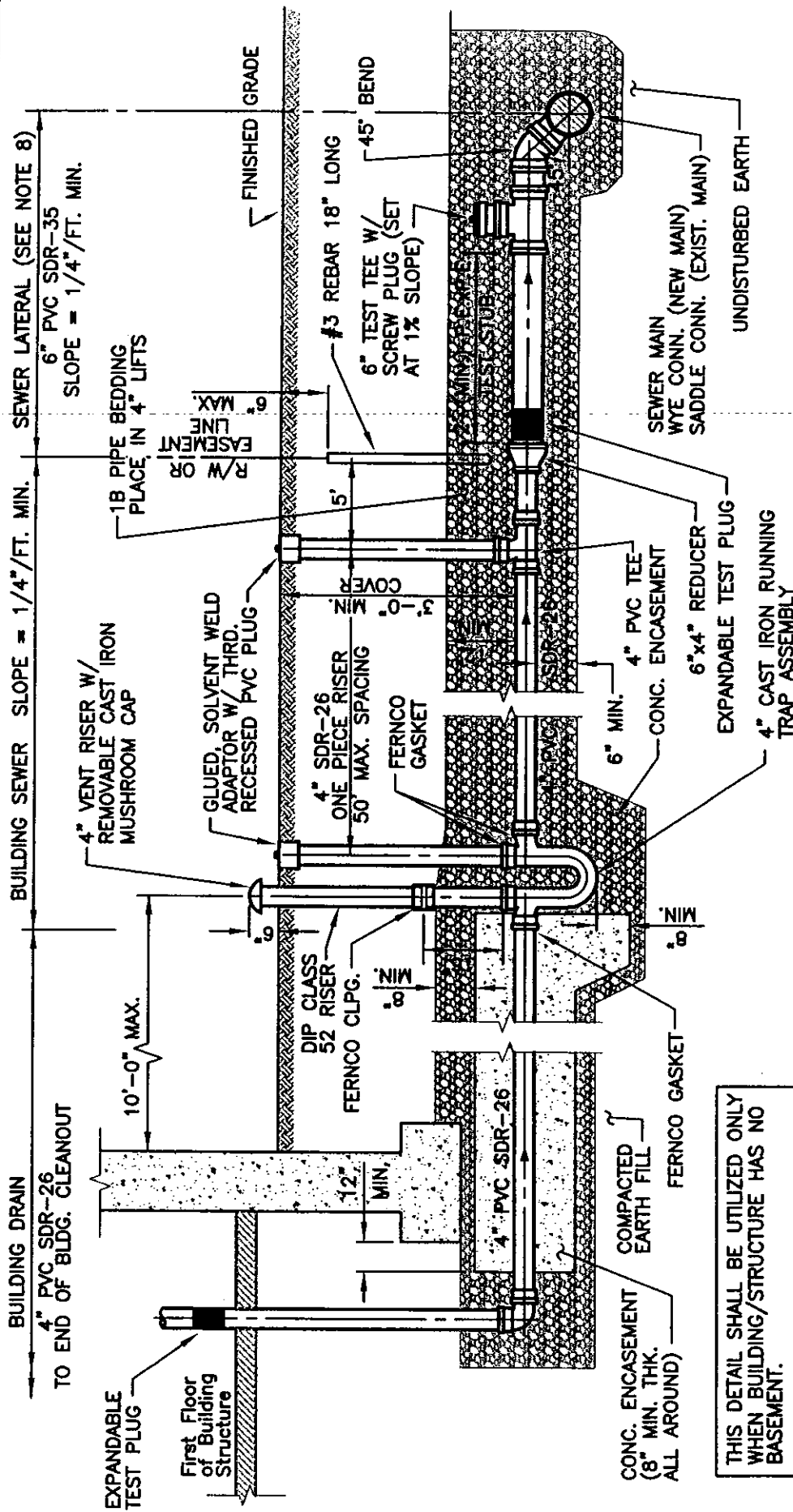


**NOTES:**

- MANHOLE CONNECTIONS** - LOW-PRESSURE LATERAL SHALL PENETRATE MANHOLE (SEAL WATERTIGHT) AND TURN DOWN (90°) TO THE MANHOLE BENCH. THE BENCH SHALL BE MODIFIED WITH A FLOW CHANNEL TO ACCOMMODATE THE PRESSURE DISCHARGE IN THE DIRECTION OF FLOW.
- GRAVITY MAIN CONNECTIONS** - LOW-PRESSURE LATERAL SHALL BE ROLLED (45°) AND CONNECT WITH A WYE (OR SADDLE IF GRAVITY MAIN IS EXISTING) USING APPROPRIATE REDUCERS AND ADAPTERS TO CREATE A SMOOTH DISCHARGE INTO THE DIRECTION OF FLOW.
- LOW-PRESSURE SEWER CONNECTIONS** - LOW-PRESSURE LATERAL SHALL BE ROLLED (45°) AND CONNECTED TO THE LOW-PRESSURE SEWER WITH A WYE AND APPROPRIATE ADAPTERS TO ENSURE A SMOOTH DISCHARGE INTO THE DIRECTION OF FLOW.
- ALL CONNECTIONS ARE SUBJECT TO ENGINEERS APPROVAL. CONNECTIONS TO HIGH-PRESSURE FORCE MAINS SHALL NOT BE PERMITTED.
- FOR PUBLIC LOW-PRESSURE SYSTEM INSTALLATION, CONTRACTOR'S RESPONSIBILITY ENDS AT RIGHT-OF-WAY OR EASEMENT LINE.
- METALLIC DETECTION TAPE SHALL BE PLACED ABOVE LOW-PRESSURE SERVICE LINE AND LATERAL MAX. 2' BELOW FINISHED GRADE.
- CONCRETE ANCHOR AS REQUIRED BY GRINDER PUMP SYSTEM MFR.
- PROVIDE TWO (2) CHECK VALVES IN SERIES BETWEEN GRINDER PUMP & CLEANOUT WHEN DISCHARGING TO A LOW-PRESSURE SEWER MAIN. OTHERWISE, PROVIDE ONE (1) CHECK VALVE.

		<b>EAST COVENTRY TOWNSHIP</b>	 ARRO Consulting, Inc.
3	8/28/07	<b>STANDARD DETAIL - SEWER SYSTEM</b>	Suite 100, 649 North Lewis Road Limerick, Pennsylvania 19468 Tel 610.495.0303
2	9/21/06		
1	2/9/04		
REVISION	DATE	<b>SIMPLEX GRINDER PUMP DETAIL-PLUMBING</b>	DATE: JUNE 2002
			DETAIL: 12





FOR NOTES & CONNECTION TO AN EXISTING BUILDING SEWER SEE DETAIL 17C

**EAST COVENTRY TOWNSHIP**  
**STANDARD DETAIL - SEWER SYSTEM**  
**BUILDING SEWER & LATERAL**  
**UNDER FOUNDATION**

3	8/28/07	
2	9/21/06	
1	2/9/04	
REVISION	DATE	



Suite 100, 649 North Lewis Road  
 Limerick, Pennsylvania 19468  
 Tel. 610.495.0303

DATE: JUNE 2002  
 DETAIL: 17B

**NOTES:**

1. BUILDING SEWER SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL PLUMBING CODE.
2. BUILDING SEWER (4") IS MINIMUM. LARGER PIPE MAY BE USED IF REQUIRED & CONSISTENT WITH LOCAL PLUMBING CODE.
3. ALL LATERALS SHALL BE PLUGGED & MARKED WITH A STAKE AS INDICATED.
4. ACCORDING TO FIELD CONDITIONS, VERTICAL RISER (SEE STANDARD DETAIL) MAY BE UTILIZED WHEN AUTHORIZED BY THE ENGINEER.
5. TO CONDUCT TESTING OF BUILDING SEWER, INSTALL EXPANDABLE PLUGS AT LOCATIONS SHOWN. AT COMPLETION OF TESTING, REMOVE PLUGS.
6. NO BUILDING SEWER VENT CAPS SHALL BE INSTALLED WITHIN A 100-YR FLOOD PLAIN OR WITHIN FLOOD PRONE AREAS.
7. NO VENT CAPS OR CLEANOUTS SHALL BE INSTALLED IN DRIVEWAYS OR OTHER PAVED AREAS, UNLESS SPECIFICALLY APPROVED BY THE TOWNSHIP.
8. THE LATERAL SHALL BE INSTALLED TO THE EDGE OF THE SEWER EASEMENT FOR SEWERS LOCATED IN AN EASEMENT OR TO THE STREET RIGHT-OF-WAY AS A MIN., OR TO SUCH POINT, AS REQUIRED, TO CLEAR STREET SIDEWALKS & UNDERGROUND UTILITIES.
9. FOR NEW SEWER MAINS, INSTALL & TEST LATERAL CONCURRENTLY WITH MAIN. INSTALL 2"x4" ONE-PIECE WOOD MARKER 3' ABOVE GRADE WITH FOOTAGE MARK TO INDICATE DEPTH TO INVERT OVER TEST TEE & END OF LATERAL. AFTER CONNECTION OF BUILDING SEWER, REMOVE MARKERS & INSTALL REBAR OVER TEST TEE AS SHOWN.
10. FOR CONNECTION TO EXISTING SEWER MAINS, CONCURRENTLY TEST BUILDING SEWER & LATERAL UP TO TEST TEE.
11. REFER TO SECTION 6 OF TECHNICAL SPECIFICATIONS FOR COMPLETE MATERIAL, INSTALLATION & TESTING REQUIREMENTS
12. TEST PRESSURE: MINIMUM RESIDUAL PRESSURE OF 5.0 PSI MUST BE MAINTAINED FOR 15 MINUTES WITHOUT INTRODUCTION OF ADDITIONAL AIR OR WATER.

**CONNECTION TO EXISTING BUILDING SEWER:**

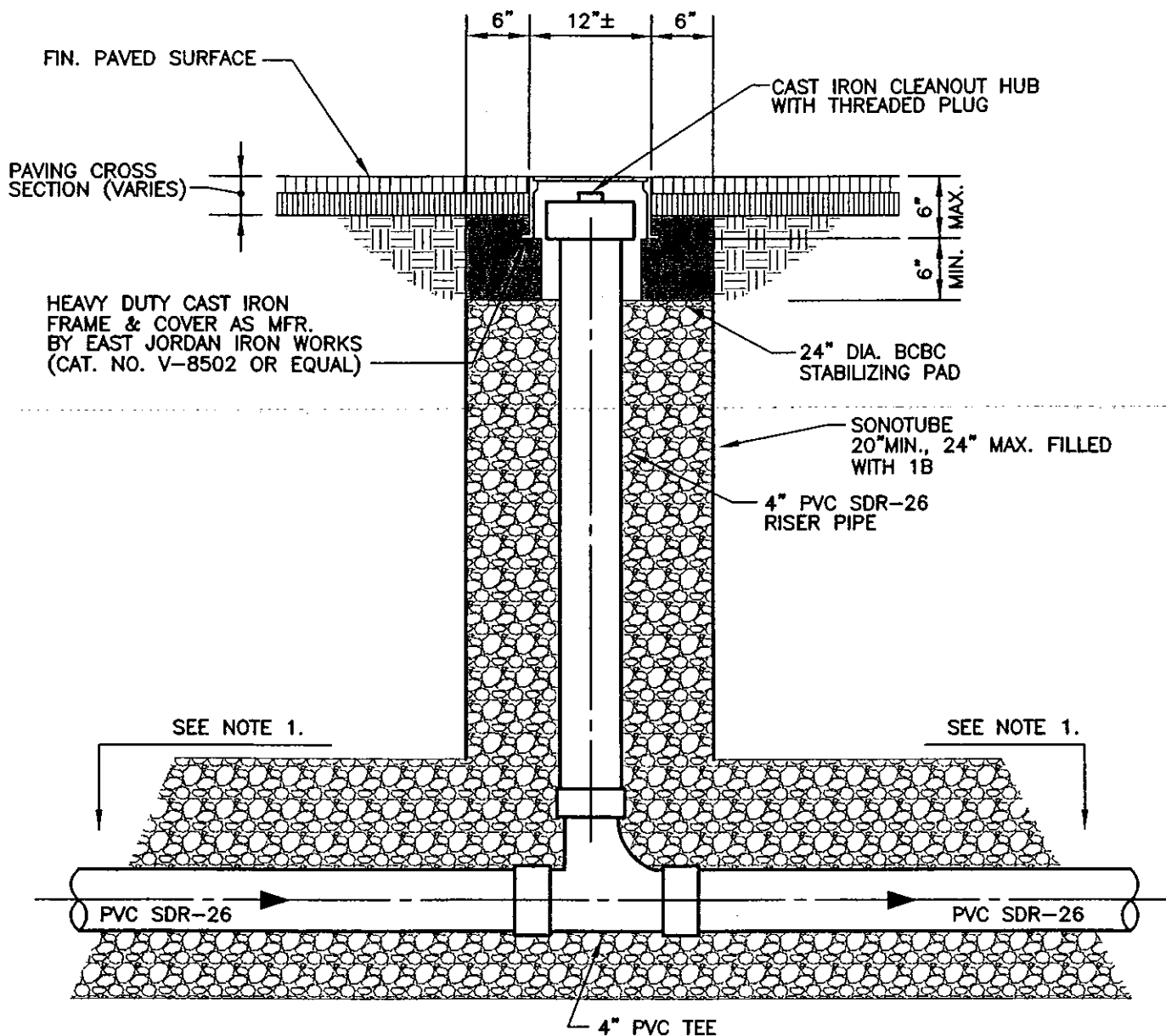
1. CONNECT TO EXISTING BURIED CAST IRON OR PVC SEWER A MIN. OF 5'-0" OUTSIDE THE BUILDING WALL. CONNECTION CAN ONLY BE MADE PROVIDED THE EXISTING PIPE IS IN GOOD CONDITION. THE ALTERNATE POINT OF CONNECTION WILL BE LOCATED INSIDE BASEMENT OR FOUNDATION WALL. CONNECTIONS TO EXISTING BUILDING SEWERS MUST BE APPROVED BY TOWNSHIP'S PLUMBING INSPECTOR.

**NOTE:**

USE THE ABOVE NOTES IN CONJUNCTION WITH DETAILS 17A & 17B.


		<b>EAST COVENTRY TOWNSHIP</b>  STANDARD DETAIL – SEWER SYSTEM	 ARRO Consulting, Inc.  Suite 100, 649 North Lewis Road Limerick, Pennsylvania 19468 Tel 610.495.0303
3	8/28/07		
2	9/21/06	<b>BUILDING SEWER &amp; LATERAL DETAIL NOTES</b>	DATE: JUNE 2002
1	2/9/04		DETAIL: 17C
REVISION	DATE		

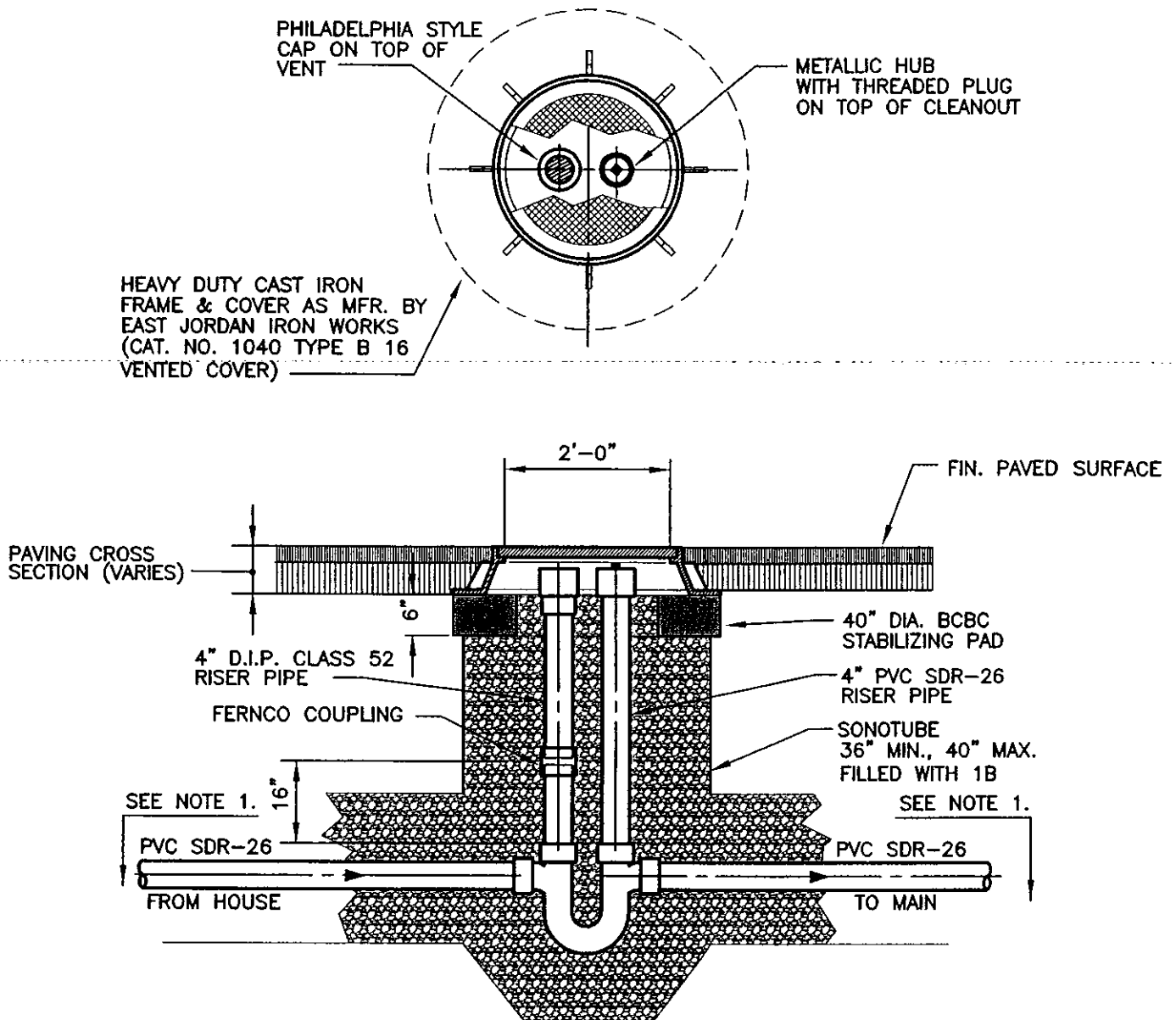




**NOTE:**

1. SEE BUILDING SEWER & LATERAL DETAILS.  
BUILDING SEWER IS GENERALLY SHOWN ON THIS DETAIL & IS PROVIDED FOR ORIENTATION PURPOSES ONLY.

		<b>EAST COVENTRY TOWNSHIP</b>  <b>STANDARD DETAIL - SEWER SYSTEM</b>	 <b>ARRO Consulting, Inc.</b>  Suite 100, 649 North Lewis Road Limerick, Pennsylvania 19468 Tel 610.495.0303
1	8/28/07	<b>NEW CLEANOUT IN PAVED AREA</b>	DATE: SEPTEMBER 2006
REVISION	DATE		DETAIL: 18



**NOTE:**

1. SEE SEE BUILDING SEWER & LATERAL DETAILS. BUILDING SEWER IS GENERALLY SHOWN ON THIS DETAIL IS PROVIDED FOR ORIENTATION PURPOSES ONLY.

**EAST COVENTRY TOWNSHIP**  
**STANDARD DETAIL - SEWER SYSTEM**

**NEW CLEANOUT & VENT**  
**IN PAVED AREA**

**ARRO**  
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DATE: SEPTEMBER 2006

DETAIL: 19